CLAIMS

1. Continuous method for shaping a metallic flat material, particularly a metal plate, a metal sheet and/or a metal strip to give a metallic wave profile, in which the flat material (16) for shaping the wave profile (18) is passed between two meshing tooth systems (32, 34) of two rotating, toothed rolls (28, 30), characterized in that for setting a desired profile height of the wave profile (18) the continuously adjustable centre distance (A) between the rolls (28, 30) is adjusted before or during the passing through of the flat material (16) and that for presetting the profile cross-section of the wave profile (18) the flank clearance (FS) between the meshing tooth systems (32, 34) is adjusted by the relative rotation with respect to one another of the rolls (28, 30) constructed with a continuously adjustable mutual rotation position before or during the passing through of the flat material (16).

2. Method according to claim 1, characterized in that the rolls (28, 30) are rotated relative to one another for producing a symmetrical or an asymmetrical profile cross-section of the wave profile (18).

3. Method according to claim 1 or 2, characterized in that the profile height of the wave profile (18), starting from the flat material (16), is shaped as a sinusoidal or asymmetrical wave profile (18) up to a trapezoidal wave profile (18) by the continuous adjustment of the rolls (28, 30).

4. Method according to claims 1, 2 or 3, characterized in that the rolls (28, 30) for shaping a wave profile (18) trapezoidal in profile cross-section are brought together with their cross-sectionally trapezoidal tooth systems (32, 34) until the shaping gap between the tooth systems (32, 34) of the rolls (28,

30) at least approximately corresponds to the thickness of the flat material (16).

5. Method according to one of the claims 1 to 4, characterized in that the flank clearance (FS) between the leading or following tooth flanks (52), considered in the rotation direction of the rolls (28, 30), of the meshing tooth systems (32, 34) is set in such a way that said flank clearance (FS) at least approximately corresponds to the thickness of the flat material (16).

6. Method according to one of the claims 1 to 5, characterized in that a lubricant is applied to the flat material (16) and/or the rolls (28, 30) for shaping the wave profile (18).

7. Method according to claim 6, characterized in that as the lubricant, prior to the shaping of the flat material (16) to it is applied a lubricating varnish, particularly an epoxy resin-binder based lubricating varnish.

8. Method according to claim 6 or 7, characterized in that, prior to shaping, to the flat material (16) a lubricating foil is applied as a lubricant and following the shaping of the wave profile (18) it can optionally be removed from the shaped flat material (16).

9. Device for the continuous shaping of a metallic flat material, particularly a metal plate, a metal sheet and/or a metal strip, to give a metallic wave profile, with two rotary, toothed rolls (28, 30), between whose meshing tooth systems (32, 34) can be passed the flat material (16) to be shaped for shaping the wave profile (18), characterized in that the centre distance (A) between the rolls (28, 30) is adjustable for setting the height of the wave profile (18) to be shaped, that the

flank clearance (FS) between the meshing tooth systems (32, 34) is adjustable for modifying the profile cross-section of the wave profile (18) by adjusting the rotation positions of the rolls (28, 30) relative to one another and that the centre distance (A) between the rolls (28, 30) and the rotation position of the rolls (28, 30) relative to one another are continuously adjustable.

10. Device according to claim 9, characterized in that the rolls (28, 30) are crowned.

11. Device according to claim 9 or 10, characterized in that the surfaces of the rolls (28, 30), at least in the areas where they come into contact with the flat material (16), have a centreline average surface roughness (Ra) in a range 0.01 to 6.5 µm and are preferably ground and/or coated and/or polished.

12. Device according to one of the claims 9 to 11, characterized in that the crest (50) of each tooth (48) of the tooth systems (32, 34) and/or each gullet (54) formed between two teeth (48) are rounded at their transitions (56, 58) or at its transition (58, 58) into the tooth flank (52).

13. Device according to one of the claims 9 to 12, characterized in that the crest (50) of each tooth (48) and/or the gullet (54) between two adjacent teeth (48) is flattened.

14. Device according to one of the claims 9 to 13, characterized in that at least zonally each tooth flank (52) passes in a cross-sectionally linear manner or cross-sectionally has a slightly curved, convex shape between the crest (50) and the gullet (54).

15. Device according to one of the claims 9 to 14, characterized in that at the ends of the two rolls (28, 30) is in each case provided an adjusting device common to both rolls (28, 30) for adjusting the centre distance (A) between the rolls (28, 30), the two adjusting devices being adjustable separately from one another.

16. Method for the continuous manufacture of a composite material, in which on a metallic flat material, particularly a metal sheet, a metal plate and/or a metal strip a wave profile is shaped in accordance with the method according to one of the claims 1 to 8 where, following the shaping of the wave profile (18), at least one further flat material (22, 26) is applied to one or both sides of the profile elevations of the wave profile (18) and that the further flat material (22, 26) applied is firmly joined to the wavy flat material (16).

17. Method according to claim 16, characterized in that the further flat material (22, 26) is continuously applied to the wavy flat material (16) and is fixed, preferably by adhesion, thereto.

18. Plant for the continuous manufacture of a composite material from a wavy flat material, particularly from a wavy metal plate, a wavy metal sheet and/or a wavy metal strip, and at least one further flat material using a device which, according to one of the claims 9 to 15, is constructed for the continuous shaping of a wave profile (18) from a flat material (16), at least one supply device (24, 28) for supplying the further flat material (22, 26) to the wavy flat material (16) passing out of the continuous shaping device and at least one joining unit for joining the wavy flat material (16) to the further flat material (22, 26) supplied.

19. Plant according to claim 18, characterized in that the joining unit has a device (36, 44) for applying adhesive to the profile elevations of the wave profile (18) of the wavy flat material (16) and a pressing device, preferably a pressing roll (40, 46), for pressing the further flat material (22, 26) supplied against the wavy flat material (16) provided with the adhesive.

20. Composite material, particularly for the manufacture of wall, ceiling or floor panels and air conditioning elements, manufactured with a method according to one of the claims 16 or 17.